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ABSTRACT OF THE DISCLOSURE

A planar filter has a planar resonator including a conductive region having smoothed contours and supporting a first resonating mode propagating along a first conductive path and a second resonating mode propagating along a second conductive path perpendicular to the first conductive path. The planar filter also has a conductor-free region made in the conductive region and having smoothed contours. The conductor-free region is disposed along a region axis forming an angle with respect to the first conductive path. The conductor-free region causes a perturbation of the symmetry of the planar resonator resulting in a frequency shift of the first and second resonating mode and their mutual coupling.